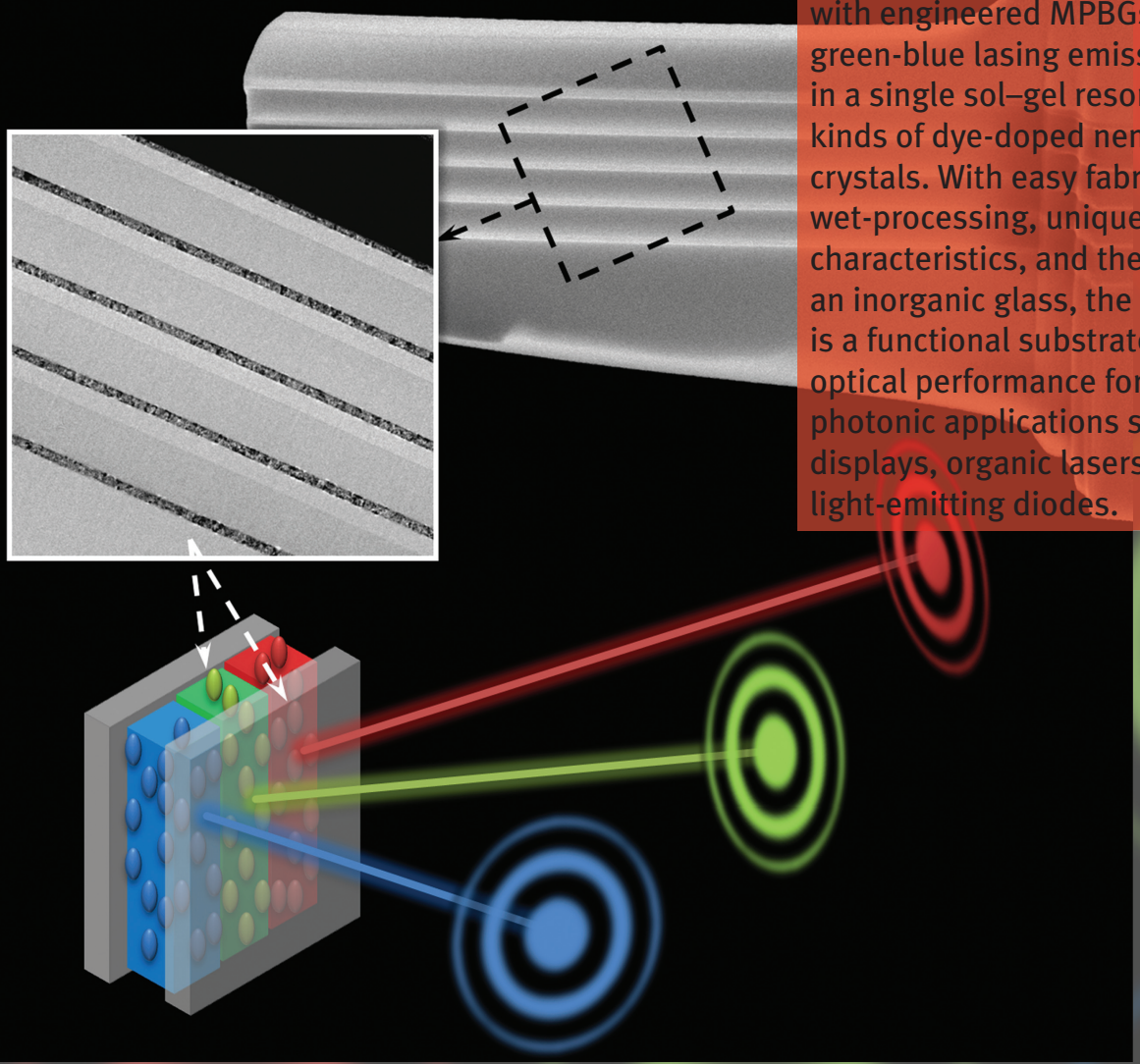
NANO MICRO
small

Photonic Devices

The picture shows an inorganic glass film with multiple photonic band gaps (MPBGs). The film is fabricated by sol–gel processing of TiO_2, SiO_2, and mixed SiO_2–TiO_2 films. In the visible region, the spectral characteristics of MPBGs can be controlled by adjusting fabrication parameters. Using the film with engineered MPBGs, pixelated red-green-blue lasing emissions are achieved in a single sol–gel resonator with three kinds of dye-doped nematic liquid crystals. With easy fabrication via wet-processing, unique optical characteristics, and the advantages of an inorganic glass, the new sol–gel film is a functional substrate with enhanced optical performance for wide-band photonic applications such as reflective displays, organic lasers, and organic light-emitting diodes.



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Sol–Gel Substrates with Engineered Multiple Photonic Bandgaps for Full-Color Photonic Devices
N. Y. Ha et al.